Geographic Information System (GIS)

Geographic Information System

Topic Area: Geographic Information System (GIS)

Action Item

Develop compatible and appropriate Agency-wide approaches to using GIS to address potential environmental justice concerns.

Office of Emergency and Remedial Response

The Office of Emergency and Remedial Response (OERR) used GIS technology, LandView, and 1990 census data to categorize demographic and median income characteristics of populations living around National Priorities List (NPL) sites. [Note: More detail on this entry is reported under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) topic area.]

Chemical Emergency Preparedness and Prevention Office

The Chemical Emergency Preparedness and Prevention Office (CEPPO) is preparing to distribute LandView, the CD-ROM reference atlas that combines maps with demographic and economic census data along with EPA facility databases. [Note: More detail on this entry is reported under the CEPPO topic area.]

Office of Solid Waste

The Office of Solid Waste (OSW) has developed a GIS application, called the Decision Support System (DSS), jointly with the Environmental Monitoring Systems Laboratory in Las Vegas (EMSL-LV). [Note: More detail on this entry is reported under the Resource Conservation and Recovery Act (RCRA) topic area.]

Region 1

Region 1 used GIS data and census data to prioritize high National Corrective Action Prioritization System (NCAPS) Resource Conservation and Recovery Act (RCRA) treatment, storage, and disposal (TSD) facilities to determine the appropriate course of corrective action. [Note: More detail on this entry is reported under the RCRA topic area.]

In addition, Region 1 has also begun to utilize GIS at Federal Facilities. [Note: More detail on this entry is reported under the Federal Facilities topic area.]

Region 2

Region 2 completed pilot studies that identify areas with potential environmental justice concerns in New Jersey and New York. The pilot studies used GIS to demographically map the States for population density, ethnicity, and income. This information

was combined with a modified health-risk formula, developed by Region 6, to graphically display potential environmental justice areas. After peer review of the pilot studies, Region 2 incorporated the study data into the Region's GIS and generated Regional demographic maps of New Jersey and New York. In addition to generating the demographic maps, the Region can combine the demographic information from the studies with other program health-risk data (e.g., chemical-specific release data and exposure data); specific geographic data (e.g., roads, streams, and primary aquifer boundaries); and facility data (e.g., hazardous waste sites and other potential pollution sources) in the GIS. The information gained from the pilot studies will also provide RCRA enforcement program personnel with insight into the demographic makeup of a community prior to undertaking inspections or enforcement actions.

The Region also used GIS demographic maps to target its inspections for the Long Island Initiative that includes compliance evaluation inspections of 200 facilities in Nassau County and Suffolk County, New York, that are located in areas that pose high risks to Long Island's groundwater. GIS maps helped the Region target its inspections to facilities in areas of environmental justice concern and where the groundwater is most vulnerable.

Completed Milestones

5/94   Developed initial pilot study.

6/94   Peer review of pilot study.

9/94   Completed New Jersey pilot study.

10/94   Completed New York pilot study.

10/94   Reviewed New Jersey and New York pilot studies.

11/94   Developed Regional maps of New Jersey and New York for compliance
            purposes only.

12/94   Identified Long Island facilities to be inspected.

3/95   Completed 80 inspections in Long Island, New York.

Contacts

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In addition, Region 2 awarded a data management cooperative agreement to the New Jersey Department of Environmental Protection (NJDEP) in September 1994. Under the agreement, NJDEP will continue identifying accurate locations for all regulated facilities in the State using the global positioning satellite and GIS. [Note: More detail on this entry is reported under the CERCLA topic area.]

Region 3

Region 3 is in the process of obtaining GIS maps for each high NCAPS RCRA facility within the Region. To accomplish this task, the Region verified the locations of Regional high NCAPS facilities and completed an evaluation of the demographic model that the Region will use to create the maps. These maps will contain the latest demo-

graphic data layered with details gathered from various databases (e.g., CERCLA Information System (CERCLIS), RCRA Information System (RCRIS)) on program-specific information regarding releases from the facilities. The Region also drafted the RCRA facility evaluation form (RFEF) for gathering more information about NCAPS facilities and is circulating it to RCRA managers for review. The information provided by the maps will help prioritize and identify areas with potential environmental justice concerns for RCRA enforcement action.

Completed Milestones

3/94   Verified location of high NCAPS facilities.

3/94   Located site boundaries.

4/94   Drafted RFEF.

4/94   Finished demographic model.

Contact

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Region 3 also is using GIS to aid in identifying the socio-economic makeup of communities being assessed under Superfund. [Note: More detail on this entry is reported under the CERCLA topic area.]

In addition, Region 3 has completed GIS mapping of NPL sites in the Region to show racial, education, poverty, and population data. The mapping data will allow the Region to visually depict the demographics of Region 3's NPL sites and their surrounding communities to help identify areas of environmental justice concern. The Superfund Community Relations Branch has started coordinating its community relations activities using the demographic information provided by the GIS maps.

Contact

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Region 4

Using GIS capabilities, Region 4 developed a proactive site discovery program to identify CERCLA sites. [Note: More detail on this entry is reported under the CERCLA topic area.]

Region 4 also actively uses GIS to determine per capita income levels and minority population in areas surrounding specific CERCLA and RCRA sites. The Region has obtained the necessary equipment and updated the CERCLIS and RCRIS databases that identify CERCLA and RCRA sites and their surrounding communities.

Completed Milestones

1/94 Updated database systems.

Contact

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Region 5

Region 5's RCRA and Superfund programs have been working together to coordinate the acquisition and development of GIS capability in the Region's waste management division. Both programs use GIS in targeting the efforts of their respective programs and anticipating potential environmental justice concerns in communities around Region 5 sites and facilities. To support GIS, the Waste Management Division has established five workstations with graphic capabilities and CD-ROM drives.

Completed Milestones

9/94   Purchased CD-ROM drives and Census Bureau map files for RCRA.

Contacts

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Region 6

Region 6 has used GIS to identify installations with environmental justice concerns that have been designated for closure or realignment under the Base Realignment and Closure (BRAC) Act. [Note: More detail on this entry is reported under the Federal Facilities topic area.]

In addition, Region 6 has utilized GIS to complete the identification of demographics, including minority and income information, surrounding RCRA TSD facilities. The region using this information to address environmental justice issues.

Completed Milestones

6/94   Contract II approved.

8/94   Deliverable received.

8/94   Completed entry of data I.

9/94   Completed analysis of data I.

Contact

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Region 7

Region 7 conducted a screening, using GIS in conjunction with CERCLIS, RCRIS, and demographic information (population density, ethnicity, and income), to identify counties that have a high co-occurrence of minority or low-income population, and RCRIS/CERCLIS listings. As a result of this screening, the Region selected St. Louis and St. Louis County as an environmental justice pilot area for more intensive scrutiny. The Region is working to further refine the analysis of the area to the lowest possible census tract level. The Region has conducted an address matching process to locate RCRA facilities, CERCLA sites, and air emission sources within the pilot area

and is reviewing the results. When the review is complete, the information gained will be added to the Region's GIS. If the study of the St. Louis area is successful, the Region will investigate six other counties in the Region that may have environmental justice concerns based on the original screening.

Completed Milestones

1/94   Selected St. Louis and St. Louis County as an environmental justice pilot area.

11/94   Conducted address matching process.

Contact

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Region 8

Region 8 completed a GIS demonstration map of the metropolitan Denver, Colorado, area. The demonstration map identifies the location of RCRA-regulated facilities and environmental justice focus areas with large minority or low-income populations. The Region will use the maps to delineate areas where enhanced public involvement with RCRA siting and permitting actions may be desired. The Region also is working to update its GIS with current RCRIS data and to complete GIS maps, like those produced for the Denver area, for all areas of Region 8.

Completed Milestones

12/94   Completed GIS demonstration map of Denver.

Contact

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Region 9

Region 9 has undertaken an Assessment Project to identify and create GIS maps of areas with potential environmental justice concerns. The Region developed criteria and parameters for mapping minority and low-income communities and has been incorporating this information into the Region's GIS. The Assessment Project will analyze all States in the Region for demographics and potential and measured sources of pollution. The goal of the project is to locate communities that are impacted by numerous pollution sources but are getting insufficient attention from agencies to address these hazards.

Completed Milestones

2/95   Selected pilot communities.

2/95   Developed outreach plan.

Contacts

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Region 10

Region 10's RCRA program, with the assistance of the Region's Environmental Services Division, used GIS and census data to identify RCRA TSD facilities in Washington, Oregon, and Idaho. In addition, Region 9 aided Region 10 in obtaining latitude and longitude for Region 10 RCRA-regulated large quantity generators, and Region 10 has entered this information into its GIS. The Region plans to use the GIS data, in cooperation with States, to target public outreach and stakeholder meetings for communities, evaluate enforcement and compliance priorities in conjunction with State programs, evaluate the timing and priority of corrective action remedies, and incorporate environmental justice concerns into supplemental environmental project (SEP) penalty offsets. In addition, the Region is continuing work on the GIS analysis to include facilities in Alaska.

Completed Milestones

9/94   Identified RCRA TSD facilities.

9/94   Obtained latitude/longitude from Region 9.

Contact

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